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CUSTOMER NUMBER 27792

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Jason Wilcox et al.	Attorney Docket No: MICR0216
Serial No:	09/596,195	Group Art Unit: 3622
Filed:	June 17, 2000	Examiner: Duran, Arthur D.
Title:	INVENTORY MANAGEMENT	

REPLY BRIEF TRANSMITTAL LETTER

Bellevue, Washington 98004

September 28, 2004

TO THE COMMISSIONER FOR PATENTS:

Enclosed herewith for filing in the above-identified patent application is a Reply Brief in triplicate.

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Respectfully submitted,

Ron Anderson

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Date: September 28, 2004

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REPLY BRIEF

Bellevue, Washington 98004

September 28, 2004

TO THE DIRECTOR OF THE PATENT AND TRADEMARK OFFICE:

This document is a Reply Brief in an appeal of a final rejection of the above-identified patent application and is responsive to the Examiner's Answer dated July 30, 2004. The Board is requested to consider the following remarks in reaching a decision in this appeal.

REMARKS

Appellants respectfully disagree with the Examiner's analysis and interpretation of the play lists and priority queues disclosed by Brown in relation to appellants' claim on appeal. In particular, appellants respectfully request that the Board consider the following characteristics of Brown's priority queues and play lists, in order for the differences between Brown's priority queues and play lists and the item slot groups recited by appellants in these claims to be apparent.

Before discussing Brown's play lists and priority queues in detail, it will be helpful to review the paradigms employed by the ad matching services disclosed by Brown, and those disclosed by appellants. In Brown's system, websites (content sites) and end users (subscribers) register with an ad matching service. Then, the service selects a prioritized list of ads (a priority queue) to be displayed on each website and a prioritized list of ads to be displayed to each end user (as well as a prioritized list of ads to be displayed in a given time period). When an end user visits a website, the service uses the previously prepared prioritized lists of ads (specific to the end user, the website, and the time period) to generate a list of ads (a play list) to be displayed to the end user while the end user is browsing the website. Brown is clearly concerned with tailoring ads specific to end users, websites, and time periods, and concerned with doing a large amount of offline processing so that little computational resources are required after a request is received. Specifically, the only processing required in Brown after a request for ads is received is the selecting of ads from the previously generated prioritized lists of ads.

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In appellants' ad matching service, the processing does not begin until a determination is made as to how many empty spaces are available in an inventory (i.e., there is no processing to place ads on a website until the number of spaces available for ads is determined). While Brown's goal is to match ads to specific to end users, websites, and time periods in real time without requiring substantial computational resources to be expended when the matching occurs, appellants' method attempts to solve a different problem. In appellants' claimed invention, ads placed on a website will correspond to that specific websites by different degrees. For example, a football ad will correspond very well to a website related to football. A sports related ad will also correspond to a football related website, but to a lesser degree. Thus in many cases, ads having different characteristic will be matched to open spaces for ads on websites. The present invention is directed to identifying the open spaces to be filled, and filling those spaces based on matching different characteristics of the content to the space available for the ads. Because there are significant differences between the ad matching paradigms disclosed by Brown and the approach used by appellants, it is not surprising that the organizational structures employed in Brown's ad matching service are appropriate for use in appellants' claimed invention.

In a telephone interview on January 30, 2003 (referenced both in the Amendment and Request for Reconsideration dated May 7, 2003, and the Interview Summary prepared by the Examiner dated January 31, 2003), appellants' attorney, the Examiner, and a Supervisory Examiner discussed Brown's priority queues. The discussion during this interview clarified that the Examiner's rejection is based on Brown's priority queues and on the Examiner's belief that the ad content therein is equivalent to appellants' recited item slot groups and item slots. Clearly the Examiner considers the priority queues disclosed by Brown to be equivalent to appellants' item slot groups. Appellants have never agreed with the Examiner's interpretation of Brown and this basis for the rejection of the claims on appeal.

After the above noted Interview, in an attempt to more clearly distinguish over Brown, appellants amended Claims 1, 8, 13 (and added new Claim 20) to clearly recite that ***before*** the item slot groups are constructed, the number of empty item slots in an inventory is determined (see the Amendment and Request for Reconsideration dated July 1, 2003). Thus, in the invention defined by Claims 1, 8, 13, and 20, the number of empty item slots in an inventory is first determined, and then those empty item slots are organized into item slot groups based on common characteristics. Using examples from appellants' specification, each empty item slot can correspond to a portion of a

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website where a banner ad can be displayed. FIGURE 3 and the text on pages 12 (lines 15-19) and 13 (lines 17-19) of appellants' specification provide an example of 70 total spaces for ads on various baseball related websites, 80 total spaces for ads on various football related websites, and 60 total spaces for ads on various video game related websites. Significantly, the number of empty items slots, and the characteristics of the empty item slots (baseball related, versus football related, versus video game related) are determined *before* any organizational structure, such as an item slot group or a meta item slot group, is created.

This approach is distinctly different than what is disclosed or suggested by Brown. According to Brown, *before* the number of empty item slots in an inventory (i.e., the number of spaces available for banner ads) is determined, organizational structures referred to by Brown as priority queues are developed. Basically, a priority queue is filled with many different ads, such that when a request for a certain number of ads is made (i.e., a request for a play list), that request can be rapidly filled *in real time*. (See Brown, column 2, lines 22-23.) Analysts can use many different rules to determine the contents of the priority queues. Priority queues are made for *each* subscriber, *each* content site, and *each* time period (Brown, column 3, lines 55-61). Clearly, Brown teaches that significant computational resources are consumed before a determination of the number of empty spaces in an inventory is defined (i.e., before a request for a play list is generated). Once the priority queues are generated, they are sent to an online queue manager that receives requests for content. Each request for content specifies the subscriber, the content site, and the time period time that are applicable. The online queue manager uses the appropriate priority queues to produce a play list (Brown, column 4, lines 7-15). Most importantly, it is clear that Brown's priority queues are generated *before* a request for a play list is generated, such that the number of ads in a priority queue *is not related* to the number of empty item slots in an inventory (and cannot logically be related to the number of empty item slots, because that number has not yet been determined). Therefore, Brown's priority queues cannot be logically equivalent to appellants' item slot groups, because appellants' item slot groups are produced only ***after*** the number of empty slots in an inventory is determined.

For a priority queue to be equivalent to appellants item slot groups, as recited in Claims 1, 8, 13 and 20, the creation and population of a priority queue would have to include the steps of: (1) determining a number of empty spaces in an inventory; (2) organizing the empty spaces into groups according to common characteristics; and, (3) filling the empty slots with content by

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matching characteristics. While appellants' agree that priority queues are filled by matching ads to the rules defined by an analyst for each priority queue; however, there does not appear to be any reasonable basis for concluding that Brown teaches or suggests that to create a priority queue, the number of empty spaces in an inventory is first determined, so that the number of empty slots in the priority queues precisely equals the number of empty spaces in the inventory. Clearly, Brown teaches that priority queues are created and filled with ad content without regard for the number of available slots to be filled. For any given priority queue, a relational data base filled with ad content is analyzed according to the rules defined by an analyst, and those ads that match the rules are included in the priority queue. Cleary, the number of ads in a priority queue is a function of the rules controlling the filling of the priority queue, and the contents of the relational database. There simply is no basis to conclude that the number of item slots (or spaces) in a priority queue is based on determining a number of empty spaces in an inventory.

Furthermore, appellants' item slot groups are organizational structures that include a precisely defined number of item slots, even when those item slots are empty. In the above example from appellants' specification, it is determined that there are spaces for 210 ads (70 spaces on baseball related websites, 80 spaces on football related websites, and 60 spaces on video game related websites) on various websites, and those spaces can be organized into three different item slot groups based on shared characteristics (i.e., an item slot group of 70 spaces for ads on baseball related websites, an item slot group of 80 spaces for ads on football related websites, and an item slot group of 60 spaces for ads on video game related websites). Thus even when empty, the number of item slots in different item slot groups can, and usually will, vary. Regardless, the number of item slots in an item slot group is a function of the number of spaces in an inventory, which is a point that is not taught or suggested by Brown.

Now consider a priority queue. Significantly, Brown never states how many empty item "slots" there are in an empty priority queue, before the priority queue is filled with content according to the analysts' rules. The only reasonable possibilities are that each empty priority queue has: (1) no slots; (2) a fixed, predetermined number of slots; or (3) a number of slots defined by an analyst. Referring to the first of the three possibilities, the priority queues could be programmatically defined such that they can accommodate a maximum amount of data, and every time additional content is added, a new slot is produced in the priority queue to accommodate that content. Thus, an empty priority queue would have no internal compartmentalization (i.e., no slots), and when filled with

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50 different ads, would necessarily include 50 different slots. Clearly, such a priority queue is not generated by determining a number of empty slots in an inventory, and generating an organizational structure with that many slots.

Referring to the second of the three possibilities, the priority queues could be programmatically defined such that they each include a predetermined number of slots. Using the example from appellants' specification, in such a case, a priority queue for baseball ads, a priority queue for football ads, and a priority queue for video game ads would each have the same number of slots (note that in accord with appellants' claimed invention, a priority queue for baseball ads, a priority queue for football ads, and a priority queue for video game ads need not and will likely not have the same number of empty slots). In any case, priority queues programmatically defined so as to each include the same predetermined number of slots are clearly not based on the number of empty spaces in an inventory.

Referring to the third of the three possibilities, the priority queues theoretically each could be programmatically defined by the analyst to include a specific number of empty slots, different for each priority queue. However, Brown does not teach or suggest this. Brown only teaches that priority queues are filled by using analyst-defined rules to filter the content of a relational database that is filled with ads. It does not seem reasonable that an analyst could predict that for a given set of rules and a given database, the priority queue must be able to accommodate a specific number of ads. Even more significantly, Brown does not teach or suggest that when an analyst is determining the rules used to fill a priority queue, there has been *any initial determination of the number of empty spaces in an inventory that need to be filled*, such that the analyst can define the size of the priority queue to include just that many empty spaces.

On page 19 of the Examiner's Answer, the Examiner states that Brown discloses building priority queues using predetermined rules, building many different priority queues, and that some queues can be empty (such as when specific rules for a priority queue are applied to the database and no matching ads are found). Appellants agree. The Examiner also states that priority queues are of different sizes. Appellants believe a more correct statement would be that different priority queues can have different amounts of *content*. For example, a first priority queue filled using a first set of rules may include 100 ads, while a second priority queue filled using a second set of rules may include 200 ads. Brown simply does not provide any detail as to how many *empty slots* are in a priority queue before the rules are used to filter the database to fill the priority queues with ads, and

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does not teach or suggest that the number of empty slots in a priority queue has any relationship to the number of spaces for banner ads on a website (or the number of empty spaces in an inventory).

The Examiner continues by stating (Examiner's Answer, last paragraph of page 19) "Brown further discloses receiving priority queues and then sending content play lists for those queues." Appellants believe that a more correct analysis of Brown's disclosure is that Brown teaches producing priority queues according to analyst-defined rules, sending those priority queues to an online queue manager that uses the priority queues to fill requests for content, receiving a request for content specific to a particular subscriber, content site, and time period, and using the priority queues for the subscriber, content site, and time period to generate a play list, the play list including ads to be displayed to the specific subscriber visiting the specific website during the specific time period.

The Examiner further states (Examiner's Answer, last paragraph of page 19) "Note that the priority queue is synonymous with a[n] predetermined number of empty slots that need to be filled." Appellants respectfully disagree. The play list disclosed by Brown is an organizational structure that includes a predetermined number of slots that need to be filled. Based on Brown's disclosure, there simply is no way of knowing how many empty slots are in a priority queue. As discussed above, each empty priority queue might include no slots, or a fixed number of slots. In any event, it does not appear correct to conclude that the slots in a priority queue as taught by Brown need to be filled. Priority queues are filled by filtering a database according to analyst-defined rules. Brown clearly teaches that sometimes such filtering will achieve an empty priority queue. That's not a problem, because other priority queues are also generated, and at least some priority queue will be available to fill the play list, *which does need to be filled*, or some space on a webpage will not be filled with a banner ad. The play lists *need* to be filled; the priority queues do not need to be filled.

The Examiner states (Examiner's Answer, last paragraph of page 19) "Brown then returns a play list that has content filling the queue that was received." Appellants respectfully submit that this statement does not correspond to Brown's disclosure. Brown returns a play list that is filled with content originating in one or more of the priority queues generated *before* the request for a play list was received. Those priority queues are created and sent to an online queue manager, which manipulates the priority queues to fill a play list once a request for content is received. The play list does not *fill the queue that was received*; the priority queues received by the online queue manager are used to fill the play list.

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It is interesting to note that one of the reasons Brown teaches that many different priority queues are developed is that a priority queue is generated for each subscriber, (i.e., each client using a web browser to "surf" a network), each content location (i.e., each network location), and each time period (Brown, column 3, lines 55-61). Thus, when subscriber X visits website Y at time Z, priority queues X, Y, and Z are used to create a play list customized for that specific subscriber, visiting that specific website, at that specific time. Significantly, only the request for a play list has any relationship to appellants' recited steps of determining a number of empty slots in an inventory. Nevertheless, producing priority queues used to fill a play list before the number of spaces in a play list are determined is not equivalent to the steps recited in Claims 1, 8, 13, and 20, because as recited in these claims, the number of empty slots are determined ***before*** appellants' organizational structures (item slot groups and meta item slot groups) are generated.

The Examiner states (Examiner's Answer, 2nd paragraph of page 20) that Brown discloses "...[a] play list filling each previously empty queue." It is not clear what "queue" the play list fills. As appellants understand Brown's disclosure, when a subscriber visits a content site, a request for one or more ads to display to the subscriber on the pages of the content site is sent to Brown's online queue manager. The online queue manager uses the previously generated priority queues specific to the subscriber, the content site, and the time period to generate a play list. It is not clear from Brown's disclosure whether the play list includes only a specific number of ads equal to the number of spaces on the content site, or whether "extra" ads are included in the play list, so that one ad can be displayed briefly, to be replaced by a new ad after a short time. Regardless, the only organizational structure disclosed by Brown that is generated *after* a determination of the number of empty spaces in an inventory (i.e., after Brown's request for content) is a play list, and the play lists disclosed by Brown are not manipulated in the same way that appellants item slot groups and meta item slot groups are, as was discussed in detail in appellants' appeal brief.

Indeed, appellants' claims recite that once the number of empty item slots are determined, those item slots are organized into item slot groups based on shared characteristics. Referring to appellants' example, it is determined that there are 210 spaces for ads on a variety of different websites, and those spaces are organized into item slot groups corresponding to 70 spaces for ads on baseball sites, 80 spaces for ads on football sites, and 60 spaces for ads on video game sites. Because a request for content in Brown's system is based on a *specific subscriber* and a *specific content site*, there is no organization of the empty spaces, because all the empty spaces relate to that

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subscriber and to that content site. In Brown's system, each request for content is unique to a specific subscriber, a specific content site, and a specific time (Brown, column 4, lines 7-15). For that specific request, the appropriate subscriber, content site, and time period priority queues are used to generate a play list. Accordingly, all empty slots in a play list are already organized by shared characteristics, since they all relate to the same time period, the same subscriber, and the same content site/website. Thus, neither Brown nor any of the other art cited teaches or suggest appellant's recited steps of determining the number of empty slots in an inventory, *and then* organizing those empty slots into an organizational structure. There appears no logical reason to modify Brown to include appellants' recited step, and no combination of Brown and any other cited art achieves an invention equivalent that recited in appellants' claims on appeal. .

Appellants' agree with the Examiner (Examiner's Answer, page 21, first paragraph) that Brown discloses a play list that represents empty slots in an inventory filled using items of different types (i.e., ads from the subscriber queue, the content site queue, and the time period queue corresponding to the request for the play list). However, as discussed above, neither Brown's play lists nor his priority queues are equivalent to appellants' item slot groups and meta item slot groups.

With respect to the Examiner's comments regarding combining Brown and Herz, the Examiner states that the test of what the combined teachings of the references would have suggested to those of ordinary skill in the art is to be used to evaluate obviousness. Appellants disagree that one of ordinary skill in the art would conclude that either Brown's priority queues or Brown's play lists would benefit from hierarchical clustering disclosed by Herz. The Examiner justifies this rejection on the basis that Herz's hierarchical clustering allows Brown's folders, sub folders, categories, and priority queues to be better organized. As appellant understands the folders, subfolders, and categories disclosed by Brown, such organizational structures are used by an analyst to facilitate the promulgation of rules that are used to filter the ad content of the relational database to *generate* the priority queues. Even if those folders, subfolders, and categories are organized hierarchically, the results are not priority queues, and the Examiner has indicated (see the Interview Summary prepared by the Examiner dated January 31, 2003) that it is the priority queues that are equivalent to appellants' item slot groups and meta item slot groups. There appears no clear benefit to incorporating Herz's hierarchical clustering in priority queues or play lists, and thus, one of ordinary skill would hardly be led to make such a modification. Even if there might be some apparent benefit to organizing Brown's priority queues hierarchically, Brown's priority queues are

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not equivalent to appellants' item slot groups and meta item slots groups, for the reasons discussed above. Therefore, such a combination would not achieve appellants' invention as defined in Claims 1, 8, 13, and 20.

Appellants have raised the issue that Brown's ad matching involves computationally intensive manipulation of data offline, to generate priority queues for each subscriber, each content site, and each time period. This offline computation enables requests for content (i.e., a request for a play list for a specific subscriber, a specific content site, and a specific time period) to be filled very quickly, by enabling selection of ads from the priority queues for a specific subscriber, a specific content site, and a specific time period. With respect to appellants' efficiency argument, it appears that the Examiner's combination of Brown and Herz contemplates hierarchically sorting the play list generated by Brown's ad matching (since the play list is the only organizational structure generated after an inventory of empty slots is determined, and since applying a hierarchal sort to Brown's priority queues cannot be equivalent to appellants' invention, because priority queues are not equivalent to appellants' item slot groups and meta item slot groups, for the reasons discussed above, and in appellants' Appeal Brief). To do so would require additional online computation resources (i.e., additional resources *after* a request for content was received), but such a modification would be contrary to Brown's stated goal of achieving a method that performs intensive computational manipulations offline to generate priority queues, so that online ad matching can occur quickly with relatively few computational resources required at that time.

MPEP 2141.02 indicates that the entire prior art reference must be considered, including portions of the reference that teach away from the suggested combination. Brown clearly favors applying computational resources offline to maximize the ability to very quickly provide online ad matching to requests for content. Any modification that requires the use of additional online computational resources must be considered in light of Brown's disclosure, which arguably teaches against such a modification. Further, MPEP 2143 states that the modification cannot change the principle operation of the reference. Slowing down Brown's online ad matching arguably changes Brown's principle of operation, which clearly favors offline processing over online processing, in order to achieve quick real-time ad matching. Such factors must be analyzed in determining whether a combination of references would have been obvious to one of ordinary skill in the art. If such an analysis is applied, it will be apparent that the combination of prior art proposed by the Examiner is not obvious to one of ordinary skill in the art.

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From the preceding discussion, it will be apparent Brown's priority queues and play lists are not equivalent to appellants' item slot groups and meta item slot groups. The cited art does not teach or suggest the modifications to Brown's priority queues and play lists required to achieve appellants' item slot groups and meta item slot groups, and any combination of art cited by the Examiner fails to achieve an equivalent invention. Accordingly, the Examiner's position in rejecting the claims on appeal is without merit and Appellant again asks that the Board overrule the Examiner's rejection of these claims and instruct the Examiner to pass the application to issue without delay.

Respectfully submitted,

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